

# The Dairy Shoppe

**Grade Level: 4-6**

**Approximate Length of Activity: One or two class periods**

## Objectives

### Teacher

1. Provide historical information about the dairy industry.
2. Help students understand the advancements made in the dairy industry.
3. Teach students about dairy cattle.
4. Help students learn about running a business.

### Students

1. Learn about the history of the dairy industry.
2. Know what advancements have been made in the dairy industry.
3. Learn about dairy cattle.
4. Understand the many aspects involved in running a business.

**Michigan Content Standards: (Social Studies)** 4-G4.0.1; 4-E1.0.1; 4-E1.0.3; 4-E1.0.4; 4-E1.0.6; 4-E1.0.7; 5-U1.2.2; 5-U2.1.2; 6-W1.2.2; 6-W1.2.3; 6-G2.2.2; 6-G4.2.1

## Introduction

Dairy cows have the ability to change grass and grains, the kind people can't eat, into milk -- a nearly perfect food! The dairy cow can do this because she is a ruminant, an animal with four compartments to her stomach. Ruminants do not have any upper front teeth. They eat by wrapping their tongues around their food and pulling it into their mouths.

Dairy cattle were brought to America during early Viking voyages in the 1000s, Columbus' voyages in 1492, and the colonists' settlements in the early 1600s. When pioneers settled the West, they took dairy cattle with them for milk, cheese and butter. When cities began growing rapidly, it was harder to get milk from the farm to the people in the city. This problem was solved when railroads became a form of transportation. Milk was then transported to many places, some as far as 50 miles away.

Milk is now supplied to consumers on a daily basis. Before the late 1600s, milk was only available during the spring, summer, and fall, because cows could feed on pastures during these times of the year. When colonists began saving grain and hay for cattle to eat during the winter, cows started producing milk all year long.

Dairy farming occurs in every state. However, California, Wisconsin, New York, Minnesota, and Pennsylvania are the leading milk-producing states. Michigan ranks 8th in the nation in dairy production. On today's dairy farms, cows are milked two or three times a day with special milking machines. Using automated equipment, farmers milk dairy cows and store the fresh milk in a refrigerated tank. The invention of the electric milking machine marked the end of the standard milking stool and the tiring job of milking by hand. With just two of these portable milking machines, a farmer can milk a dozen cows in a quarter of the time it previously took by hand.



Dairy farmers are careful to keep the milk clean and avoid exposing it to the open air, which might cause contamination. After the milk is taken from the cows, it is pumped through a clear plastic pipe to a refrigeration tank. Special refrigerated tanker trucks then pick the milk up and transport it to the dairy processing plants, where the milk is pasteurized to kill any disease-causing bacteria.

All dairy cows are female and must have a calf before they can produce milk. Heifers are female calves less than one year of age. After cows reach two years of age they usually give birth to their own calves.

Dairy cows spend six and a half hours a day eating hay, silage and grain. Silage is fermented corn, wheat or hay with the stalks and leaves. The average cow eats 50 pounds of silage as well as 40 pounds of feed and hay each day – a total of 90 pounds of food. (The average American only eats four pounds of food a day.) Dairy cows also drink 25-50 gallons of water daily. This food and water turns into about 100 glasses of milk a day.

There are many different breeds of dairy cows and each breed varies in the amount of and richness of milk produced. Some dairy farmers keep several breeds of cows in the herd in order to maintain a consistent milk quality. Holstein-Friesian cows are large black and white cows. They produce the most milk, but the least butterfat. Holsteins are the most popular breed in this country and adapt to all kinds of climates.

## Materials Needed

- Poster board
- Markers, crayons or colored pencils
- Construction paper
- Glue or rubber cement
- Supplies to run the business:
  - Chocolate milk (in small cartons)
  - White milk (in small cartons)
  - Paper or plastic cups
  - Ice
  - Cooler or ice bucket

## Activity Outline

1. Discuss background information with the students. Help them learn about dairy cattle and milk production.
2. Next, discuss with students the elements of running a small business, such as a coffee shop or soda shop. Students will need to know about:
  - Managers: Management styles
  - Kitchen workers: Safe food handling/positive work ethic/responsibility
  - Counter workers: Cleanliness/positive work ethic/responsibility
  - Cashier: Honesty/mathematical accuracy
  - Bookkeepers: Honesty/record keeping
  - Maintenance: Cleanliness/positive work ethic/responsibility
  - Advertising: Promotion/sales
3. It is important to emphasize how each person has a vital role in the business, and how they must all work as a team for the business to be successful. Ask the students if they would like to open a specialty drinks stand called “The Dairy Shoppe” for other students in



the school. The stand could serve special drinks such as:

- Iced Mocha: Carton of chocolate milk served over a cup of ice
  - Double Mocha: Two cartons of chocolate milk at a discounted price  
Served over a cup of ice
  - Choco Latte: White and chocolate milk served together over ice
4. Students can make posters to advertise the sale of their products. The posters should include information such as the name of their business, when and where they will be selling their drinks, and what types of drinks they will be selling.
  5. This would be a good opportunity for the students to talk with a local shop owner to learn more about a small business, and what subjects in school the shop owner now finds most helpful. Perhaps the students could write resumes stating their qualifications and experiences, fill out applications and interview for specific jobs in the small business.

## Discussion Questions

1. How did dairy cattle come to America?
2. Why do dairy cattle now produce milk in the winter?
3. At what age can a dairy cow start milking?
4. How did dairy cows used to be milked?
5. How are dairy cows milked today?
6. What is milk stored in at a dairy farm?
7. What do dairy cows eat?

## Related Activities

1. Research the various breeds of dairy cattle and learn what each breed is known for.
2. Place a half pint of whipping cream at room temperature in a plastic or glass jar with the lid to make butter. One-half pint of cream will make about one-quarter pound of butter. Shake the jar for five to ten minutes. When a lump of butter forms, pour the contents of the jar into a colander to separate the butter from the buttermilk. Eat the butter on bread or crackers. A pinch of salt can be added.
3. For more information on dairy contact the United Dairy Industry of Michigan at (800) 241-MILK (6455) or [www.UDIM.org](http://www.UDIM.org).
4. Contact your county Farm Bureau to borrow a copy of the video "Vrrrrroooooommmmm2! Dairy Farming for Kids" by Rainbow Communications.
5. Web sites:  

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| <a href="http://www.whymilk.com/main.html">www.whymilk.com/main.html</a> | <a href="http://www.butterisbest.com">www.butterisbest.com</a> |
| <a href="http://www.moomilk.com">www.moomilk.com</a>                     | <a href="http://www.dairyinfo.com">www.dairyinfo.com</a>       |
| <a href="http://www.ilovecheese.com">www.ilovecheese.com</a>             | <a href="http://www.brownswiss.com">www.brownswiss.com</a>     |
6. Michigan Farm Bureau has an educational magazine geared for kids entitled "Dairy Ag Mag" which contains activities such as games, letters, facts and food ideas. To obtain copies for your classroom contact the Michigan Farm Bureau's Promotion and Education department at (800) 292-2680, ext. 3202.
7. The lesson "Tracking Technology" located in the social studies section of this curriculum guide.

